REMARKS

Claims 1-30 remain pending in the instant application. Claims 1-30 presently stand rejected. Claims 1, 12, 19, 20, and 27 have been amended. Reconsideration of the pending claims is respectfully requested.

Claim Rejections – 35 U.S.C. § 103

Claims 1-18, 20-25, and 27-30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Lettvin* (US 5,826,012) and further in view of *Ho et al.*, (US 7,188,369).

Claims 19, 26, and 30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Lettvin* and *Ho*, as applied to claim 1 above, and further in view of *Huntington et al.*, (US 6,907,524).

Applicants respectfully traverse the Office Action's rejections. To establish a *prima facie* case of obviousness, all claim limitations must be considered. MPEP § 2143. As explained below, Applicants respectfully submit that the Office Action has not established a *prima facie* case of obviousness.

Independent claim 1 of the instant patent application as presently amended expressly recites:

> A method comprising:
>> initializing a virus scanner during a pre-boot phase of a computer system;
>> scrubbing data read from an input/output (I/O) device of the computer system by the virus scanner using a virus signature database before the data is loaded, wherein the virus signature database is stored in a place not exposed to the operating system and is updated during the pre-boot phase; and
>> enacting a platform policy if a virus is detected in the data.

In rejecting claim 1, the Office Action concedes that *Lettvin* is not explicit in teaching that the virus scanner uses a virus signature database (p. 3 Office Action mailed 10/15/07). To attempt to make up for this deficiency in *Lettvin*, the Office Action cites *Ho* and concludes that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine *Lettvin* with *Ho* to arrive at the claimed invention. The Office Action claims on page 3 that the motivation for doing so would be "to allow [the] system to use a plurality of virus signatures that can be continuously updated and/or replaced." Applicants traverse this reasoning as being inherently circular (i.e., tautological): virus signature databases inherently are continuously updated and/or replaced, and thus if employed, would always need to be updated or replaced. The alleged motivation thus begs the question of what is the motivation (in the first place) to combine *Lettvin* with *Ho* (to obtain a virus signature database which is the proposition for which Ho was cited).

The Office Action asserts (in the Response to Arguments) that it is certainly possible for the virus signature database to be accessed prior to loading of an operating system. Applicants timely traverse this assertion because Applicants cannot find in the asserted references where a virus signature database signature is accessed prior to loading of an operating system. (Nor does the record assert that one of ordinary skill in the art at the time of the invention would have known this.) *Lettvin* instead teaches away from using operating systems to update virus signature databases because the *Lettvin* teaches that the presence of an operating system can obscure the presence of a virus in the memory of a computer. Applicant has amended the claim to clarify that the virus signature database is stored in a place that is not exposed to the operating system (which,

for example, may be corrupted by a virus, and which can, in turn, corrupt the virus

signature database).

Neither *Lettvin* nor *Ho* disclose, either singly or in fairly motivated combination,

a virus signature database that is updated during the pre-boot phase. As acknowledged

by the Office Action *Lettvin* fails to teach virus signature databases. *Ho* fails to

overcome this deficiency, because *Ho* employs operating systems to update the virus

signature databases (the operating systems only operate after the pre-boot phase).

Further, *Lettvin* teaches away from using virus signature databases as taught by

Ho, because *Lettvin* is directed to software that is executed **at startup** of the computer

that provides anti-virus maintenance, and/or repair functions. (*see*, Abstract.) At the

very least, *Lettvin* and *Ho* in motivated combination fail to teach or suggest the

limitation that includes "scrubbing data read from an input/output (I/O) device of the

computer system by the virus scanner using a virus signature database before the data is

loaded." *Lettvin* teaches against a modification that would allow it to perform the recited

process steps.

"If the proposed modification or combination of the prior art would change the

principle of operation of the prior art invention being modified, then the teachings of the

references are not sufficient to render the claims prima facie obvious. *In re Ratti, 270*

F.2d 810, 123 USPQ 349 (CCPA 1959), MPEP 2143.01.

Combining *Lettvin* with *Ho* as the Office Action suggests would change the

principle of operation of the system disclosed in *Lettvin*. *Ho* teaches an antivirus

scanning module operable with an operating system (see Abstract, Figure 3), while

Lettvin teaches a bootstrap-time operating system [executed before the operating system

is booted] that causes the computer to execute one or more anti-virus or other programs and that facilitates the development and use of programs that **must be executed before** an ultimate operating system is executed (column 4, lines 45-64).

Lettvin explains that executing [anti-virus software] before the ultimate operating system [executes] provides advantages to antivirus software because the software can take advantage of conditions within the computer that **only exist during bootstrap** and **do not exist after** the computer begins executing the ultimate operating system (column 4, lines 64-column 5, line 2). *Lettvin* further explains that viruses can, for example, modify the [boot sector] disk interrupt vector to point to themselves, and which is difficult to detect (column 5, lines 2-26).

Thus *Lettvin* seeks to avoid using an operating system, which can be hijacked by a virus on the boot sector of the disk used to boot the operating system. As described above, *Lettvin* instead teaches antivirus software that **must be executed before** executing the operating system, which avoids executing an operating system that may be compromised by a virus.

Ho is directed to (column 3, lines 31-46) teaches an anti-virus scanning module **with an operating system** that provides library functions for accessing computer virus signatures in a database. Accessing the computer virus signatures thus require using the library functions provided by the operating system. The alleged motivations to combine the references (for example, a plurality of virus signatures that can be continuously updated and/or replaced, to detect newly occurring viruses, to detect newly created viruses asap, to detect viruses during all phases of OS usage, and downloading the virus signatures from an external repository), as taught by the cited art, **would require the use**

an operating system (which can be compromised by a boot sector virus) to make the virus signatures available to the antivirus software. Thus, to combine *Lettvin* with *Ho* would significantly change the principle of operation of *Lettvin* by requiring the use of an operating system which *Lettvin* seeks to avoid.

Applicants further note that the "mere statement that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient by itself to establish prima facie obviousness." MPEP § 2143.01. Furthermore, the mere "fact that references can be combined or modified may be not sufficient to establish prima facie obviousness." *Id.* The tendency to resort to "hindsight" based upon Applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art." MPEP § 2142.

Consequently, the combination of *Lettvin* and *Ho* fail to teach or suggest all elements of claim 1, as required under M.P.E.P. § 2143.03. Independent claims 12, 20, and 27 include similar nonobvious elements as discussed above in connection with independent claim 1. Accordingly, Applicants request that the instant §103(a) rejections of claims 1, 12, 20 and 27 be withdrawn.

With further regard to claim 27, the office action asserts that *Ho* teaches a virtual machine monitor (VMM) to support at least one virtual machine (VM). According to the instant specification:

A VM behaves like a complete physical machine that can run its own OS. Usually, each VM session is given the illusion by the VMM that it is the only physical machine. The VMM takes control whenever a VM attempts to perform

an operation that may affect the whole computer system 100. Each VM supports a corresponding OS and firmware. Multiple VM sessions are separate entities and usually isolated from each other by the VMM. If one OS crashes or otherwise becomes unstable, the other OS's should not be adversely affected.

In contrast, *Ho* instead teaches a virtual scanning processor that is provided at the application program (AP) 302 (column 5, lines 31-33). Other virtual machines can also be provided at the AP level 302 (column 5, lines 36-37). Thus, *Ho* does not teach a VMM as the operating system because the virtual scanning processor and virtual machines execute using a single operating system 300 and does not use a separate operating system for each virtual monitor. Claim 27, as amended, recites that each VM has a separate operating system. Accordingly, Applicants request that the instant §103(a) rejections of claim 27 be withdrawn.

The dependent claims are novel and nonobvious over the cited references for at least the same reasons as discussed above in connection with their respective independent claims, in addition to adding further limitations of their own. Accordingly, Applicants respectfully request that the instant § 103 rejections of the dependent claims also be withdrawn.

CONCLUSION

In view of the foregoing remarks, Applicants believe the applicable rejections have been overcome and all claims remaining in the application are presently in condition for allowance. Accordingly, favorable consideration and a Notice of Allowance are earnestly solicited. The Examiner is invited to telephone the undersigned

representative at (206) 292-8600 if the Examiner believes that an interview might be

useful for any reason.

CHARGE DEPOSIT ACCOUNT

It is not believed that extensions of time are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a). Any fees required therefore are hereby authorized to be charged to Deposit Account No. 02-2666. Please credit any overpayment to the same deposit account.

Respectfully submitted,

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/Elizabeth J. Martinez/   June 30, 2008
Elizabeth J. Martinez   *Date*